

In the Claims

1. (currently amended) A microscope assemblage for confocal scanning microscopy comprising:

a light source ¹ for illuminating a top side of a specimen ⁶; said top side facing said light source;

at least one fluorescent-light detector ^{11, 14} arranged on a bottom side of the specimen, said bottom side facing away from said light source, said fluorescent detector detecting fluorescent light generated by said specimen; and,

at least one transmitted light detector ¹⁶ for detecting light transmitted through the specimen; said transmitted light comprising that light not produced by the fluorescence of said specimen; said fluorescent and said transmitted detectors simultaneously detecting fluorescent and said transmitted light.

2. (canceled)

3. (previously Amended) The microscope assemblage as defined in Claim 1, characterized in that at least one transmitted-light detector (16) is arranged on the side of the specimen (6) facing away from the light source (1).

4. (original) The microscope assemblage as defined in Claim 3, characterized in that a condenser (7) for the transmitted light (15) and the fluorescent light (10, 13) is arranged on the side of the specimen (6) facing away from the light source (1).

5. (original) The microscope assemblage as defined in Claim 4, characterized in that an objective (5) is arranged between the light source (1) and the specimen (6) and the aperture of the condenser (7) is larger than the aperture of the objective (5).

6. (original) The microscope assemblage as defined in Claim 5, characterized in that the transmitted light (15) and the fluorescent light (10, 13) are divisible on the side of the specimen (6) facing away from the light source (1), after passing through the condenser (7).

7. (original) The microscope assemblage as defined in Claim 6, characterized in that at least one color beam splitter (9, 12) is used to provide light to at least one fluorescent-light detector (11, 14).

8. (original) The microscope assemblage as defined in Claim 6, characterized in that a multiband detector is used for spectral separation.

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9. (original) The microscope assemblage as defined in Claim 1, characterized in that the fluorescent light (10, 13) and transmitted light (15) are detectable in one detector.

10. (original) The microscope assemblage as defined in Claim 1, characterized in that the fluorescent light (10, 13) and transmitted light (15) are detectable in different detectors (11, 14; 16).

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11. (previously amended) The microscope assemblage as defined in Claim 1, characterized in that a scanning device (4) is arranged on the side of the specimen (6) facing toward the light source (1).

12-28. (withdrawn)

29. (currently amended) A microscope assemblage for confocal scanning microscopy comprising:

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a light source (1) for illuminating a specimen (6);

at least one fluorescent-light detector (11, 14) for the detection of fluorescent light (10, 13) generated in the specimen (6), wherein the specimen (6) defines a top side (6a) facing the light source (1) and a bottom side (6b) facing away from the light source (1);

at least one transmitted-light detector (16) for the detection of transmitted light (15) passing through the specimen (6); said transmitted light comprising that light not produced by the fluorescence of said specimen; and,

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both light
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at the
same time

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an additional light source (21) operatively arranged on the side of the specimen (6) facing away from the light source (1) and arranged for illuminating said specimen; said light source (1) operatively arranged on a top side of said specimen, said additional light source (21) and said transmitted light detector (16) on the side facing away from said specimen operatively arranged to simultaneously detect said transmitted light and to illuminate said specimen.

30. (original) The microscope assemblage as defined in Claim 29, characterized in that the additional light source (21) is a white light source.

31. (previously amended) The microscope assemblage as defined in Claim 29, characterized in that an optical system is a member selected from the group consisting of a sector optical system, a sector polarization optical system, a sector stop, a sector phase stop and a sector phase filter, said optical system associated with said additional light source.

32. (previously amended) The microscope assemblage as defined in Claim 31, characterized in that the optical system is arranged in a Fourier plane before the additional light source (21).

33. (original) The microscope assemblage as defined in Claim 29, characterized in that at least one transmitted-light detector (16) is arranged on the side of the specimen (6) facing away from the light source (1).

34. (original) The microscope assemblage as defined in Claim 33, characterized in that a condenser (7) for the transmitted light (15) and the fluorescent light (10, 13) is arranged on the side of the specimen (6) facing away from the light source (1).

35. (original) The microscope assemblage as defined in Claim 34, characterized in that an objective (5) is arranged between the light source (1) and the specimen (6) and the aperture of the condenser (7) is larger than the aperture of the objective (5).

36. (original) The microscope assemblage as defined in Claim 35, characterized in that the transmitted light (15) and the fluorescent light (10, 13) are divisible on the side of the specimen (6) facing away from the light source (1), after passing through the condenser (7).

37. (original) The microscope assemblage as defined in Claim 36, characterized in that at least one color beam splitter (9, 12) is used to provide light to at least one fluorescent-light detector (11, 14).

38. (original) The microscope assemblage as defined in Claim 36, characterized in that a multiband detector is used for spectral separation.

39. (original) The microscope assemblage as defined in Claim 29, characterized in that the fluorescent light (10, 13) and transmitted light (15) are detectable in one detector.

40. (original) The microscope assemblage as defined in Claim 29, characterized in that the fluorescent light (10, 13) and transmitted light (15) are detectable in different detectors (11, 14; 16).

41. (original) The microscope assemblage as defined in Claim 29, characterized in that a scanning device (4) is arranged on the side of the specimen (6) facing toward the light source (1).

42. (previously amended) The microscope assemblage as defined in Claim 29, characterized in that at least one detector (17) is arranged on the side of the specimen (6) facing toward the light source (1), on the side of the scanning device (4) facing away from the specimen (6).

43. (original) The microscope assemblage as defined in one of Claims 29, characterized in that the light source (1) is a laser.
